



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/624,367

07/21/2003

Peter Gaal

030076

9223

23696

7590

05/05/2004

Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

EXAMINER

SUN, XIUQIN

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/624,367	Applicant(s) GAAL, PETER	
	Examiner Xiuqin Sun	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25, 27-33 and 35 is/are allowed.
- 6) ☒ Claim(s) 1-5, 22, 26 and 34 is/are rejected.
- 7) ☒ Claim(s) 6-21, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 22 and 26 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the abbreviation "SNR" is not understandable. Because it is neither spelled out in the specification nor in the claim. Examiner is unable to comprehend these claims because of the abbreviation. Since the nature of SNR is not understandable at the present time, it is therefor no art rejection being given to these claims in this office action.

Claim Objections

2. Claims 3-4, 8, 13, 16 and 27 are objected to because of the following informalities: The abbreviation "GPS" and "RMSE" need to be spelled out then followed by "(GPS)" and "(RMSE)". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 4 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Hurd (U.S. Pat. No. 4578678).

Hurd teaches a method and a computer readable media embodying a program of instructions for determining a position of a device (see Abstract), comprising: receiving a plurality of pseudo range measurements from a transmitting source (Abstract; col. 1, lines 44-52 and col. 2, lines 14-32); adjusting each of the plurality of pseudo range measurements for time correction and then arranging each of the plurality of pseudo range measurements in order of smallest value to largest value to form a pseudo range interval with the smallest value and the largest value as endpoints (col. 8, lines 3-11; col. 3, lines 59-61; cols. 4-5, lines 36-19 and col. 6, lines 9-35); dividing the pseudo range interval into a plurality of increments having a plurality of grid points (cols. 4-5, lines 36-19 and col. 6, lines 9-35); aligning a sliding pseudo range window having a width over the pseudo range interval at a first of the plurality of grid points and counting the number of pseudo range measurements within the sliding pseudo range window, and then repeating for each of the plurality of grid points within the pseudo range interval; selecting a best window based on a maximal number of pseudo range measurements within the sliding pseudo range window, comparing the maximal number with an incidence threshold, and then based on the comparison, determining an average pseudo range value (cols. 4-5, lines 36-19; col. 6, lines 9-35 and cols. 6-7, lines 60-21). Hurd further teaches: determining an

average root-mean-square error (RMSE) corresponding to the average pseudo range value (col. 10, lines 42-57); the transmitting source is a GPS satellite (Abstract).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hurd in view of King et al. (U.S. Pat. No. 6429808).

Hurd teaches a method and computer program that includes the subject matter discussed above. Hurd does not mention explicitly: said transmitting source is a terrestrial base station.

King et al. disclose a method and apparatus for assisted GPS integrity maintenance, and teach: a transmitting source which is a terrestrial base station (col. 1, lines 49-56; col. 4, lines 38-67 and col.24, lines 9-22).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of King et al. in the invention of Hurd in order to provide an improved method for position determination of a device using pseudo-range measurements from terrestrial base stations (col. 1, lines 49-56 and col. 3, lines 15-45).

Allowable Subject Matter

7. Claims 6-21, 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. Claim 26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
9. Claims 25, 27-33 and 35 are allowed.

Reasons for Allowance

9. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claim 6 is the inclusion of the limitation that the sliding pseudo range window width is 300 meters. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 7 is the inclusion of the limitation that the value of each of the plurality of increments is 5 meters. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claims 8-20 is the inclusion of the limitation that the quantity of the plurality of pseudo range measurements equals N, and

Art Unit: 2863

wherein the incidence threshold is the larger of: a filtering threshold times N , or 4 times N divided by the sum of 3 and the sliding pseudo range window width in units of GPS chips. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 21 is the inclusion of the limitation that each of the plurality of pseudo range measurements has an associated Doppler offset and further comprises the step of comparing the associated Doppler offset with a Doppler threshold. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claims 23 and 24 is the inclusion of the limitation of repeating the steps of claim 1 $M - 1$ (i.e., M minus one) times for each of remaining $M - 1$ transmitting sources to determine a plurality of M average pseudo range values. It is this limitation found in each of the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claims 25-29 is the inclusion of the limitation of selecting a plurality of best windows based on at least one predetermined criterion and determining a plurality of average pseudo range values wherein each of the plurality of average pseudo range values corresponding to each of the plurality of best windows. It is this limitation found in each of the claim, as it is claimed in the

combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 30 is the inclusion of the limitation of selecting a best window based on a maximal number of pseudo range measurements within the sliding pseudo range window and comparing the maximal number with an incidence threshold; and then based on the comparison, determining an average pseudo range value. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 31 is the inclusion of the limitation of selecting a plurality of best windows based on at least one predetermined criterion and determining a plurality of average pseudo range values wherein each of the plurality of average pseudo range values corresponding to each of the plurality of best windows. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 32 is the inclusion of the limitation of selecting a best window based on a maximal number of pseudo range measurements within the sliding pseudo range window and comparing the maximal number with an incidence threshold; and then based on the comparison, determining an average pseudo range value. It is this limitation found in the claim, as it is claimed in the

combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 33 is the inclusion of the limitation of selecting a plurality of best windows based on at least one predetermined criterion and determining a plurality of average pseudo range values wherein each of the plurality of average pseudo range values corresponding to each of the plurality of best windows. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 35 is the inclusion of the limitation of selecting a plurality of best windows based on at least one predetermined criterion and determining a plurality of average pseudo range values wherein each of the plurality of average pseudo range values corresponding to each of the plurality of best windows. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Art Unit: 2863


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280. The examiner can normally be reached on 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Xiuqin Sun
Examiner
Art Unit 2863

XS
April 30, 2004


John Barlow
Supervisor, Patent Examiner
Technology Center 2800